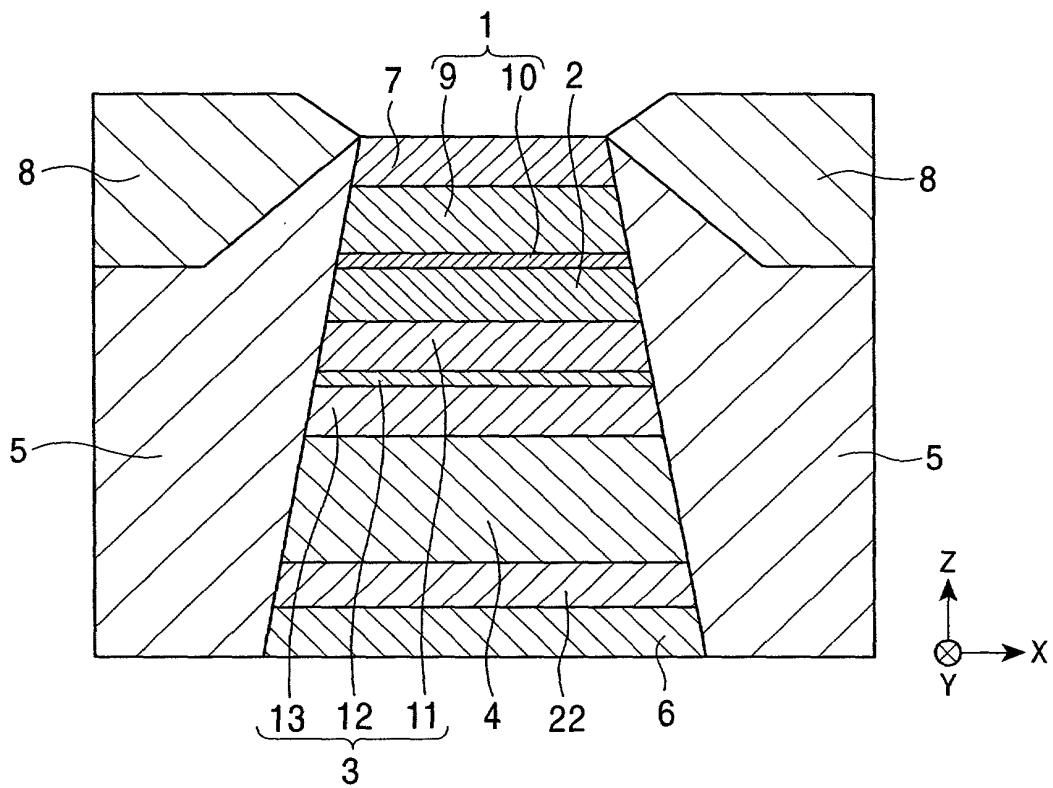


FIG. 1



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FIG. 2

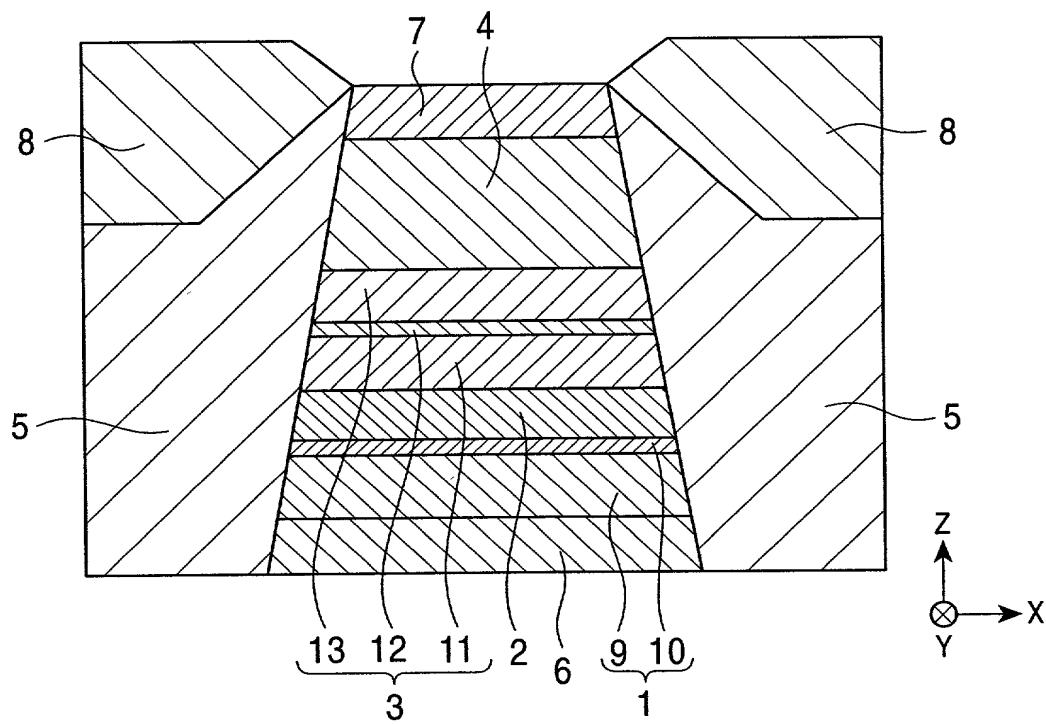


FIG. 3

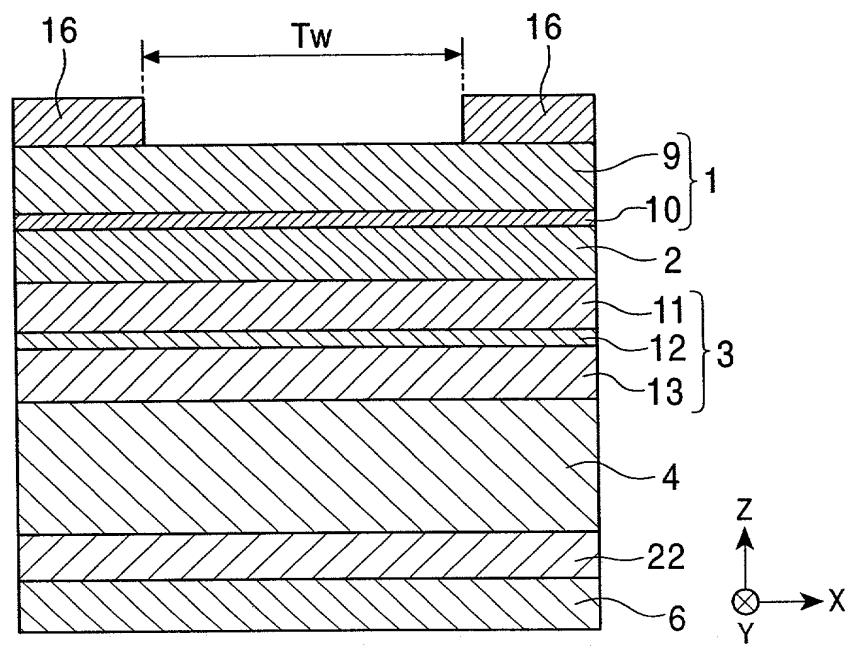


FIG. 4

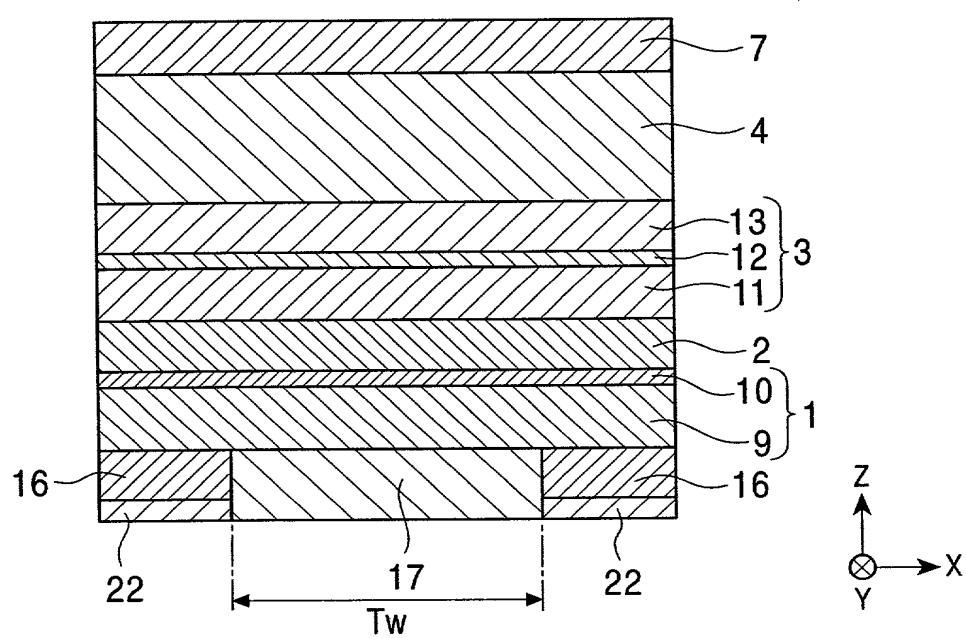
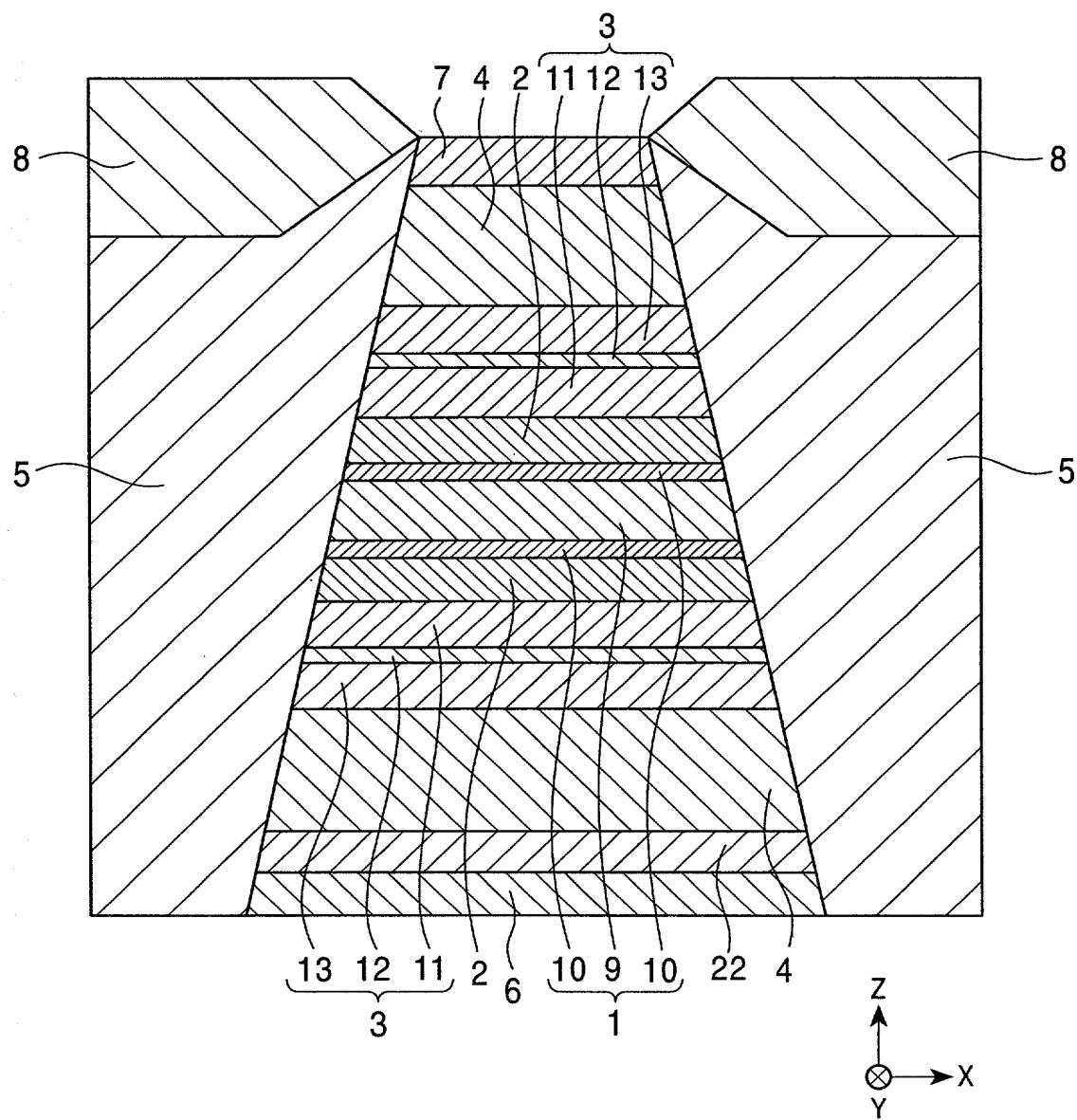


FIG. 5



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FIG. 6

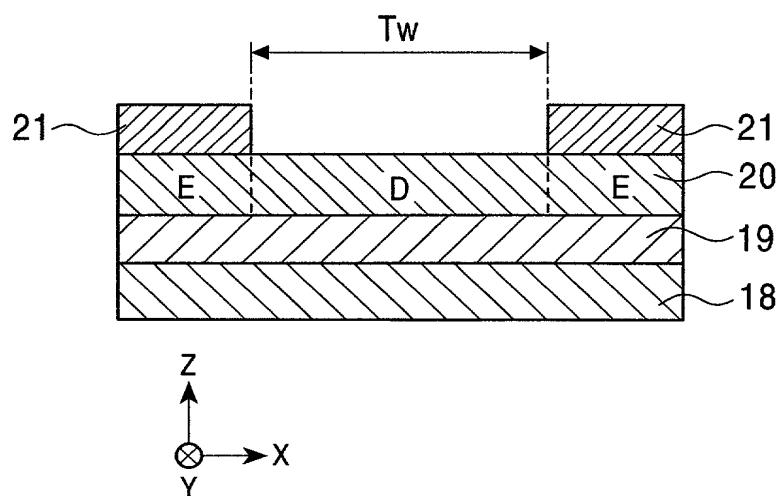


FIG. 7

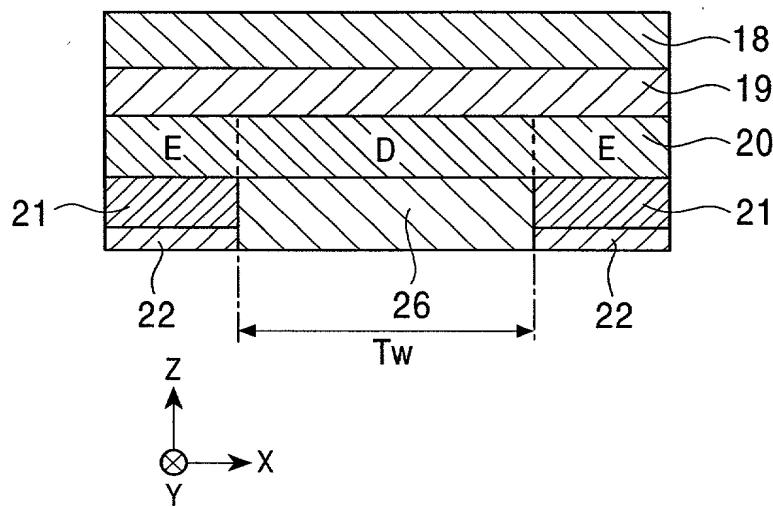
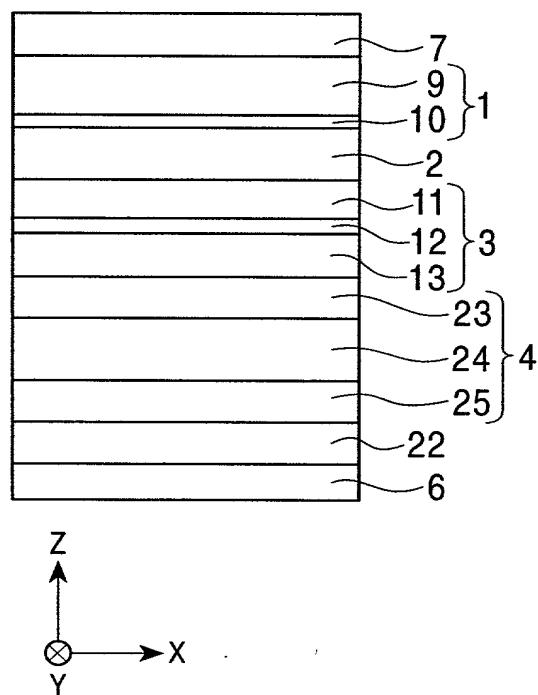
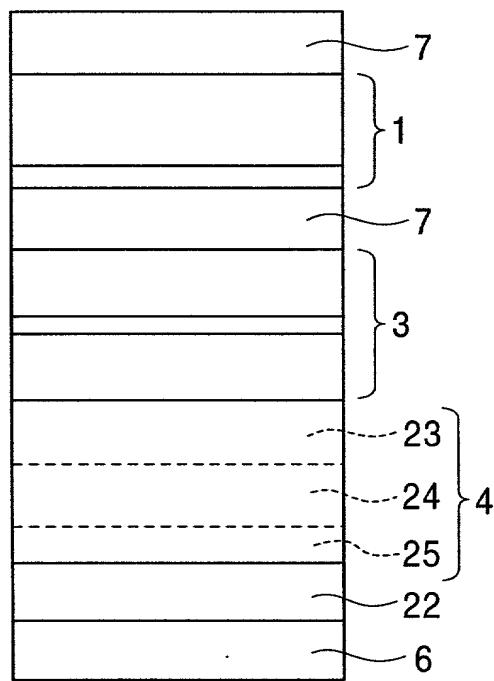


FIG. 8



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FIG. 9



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FIG. 10

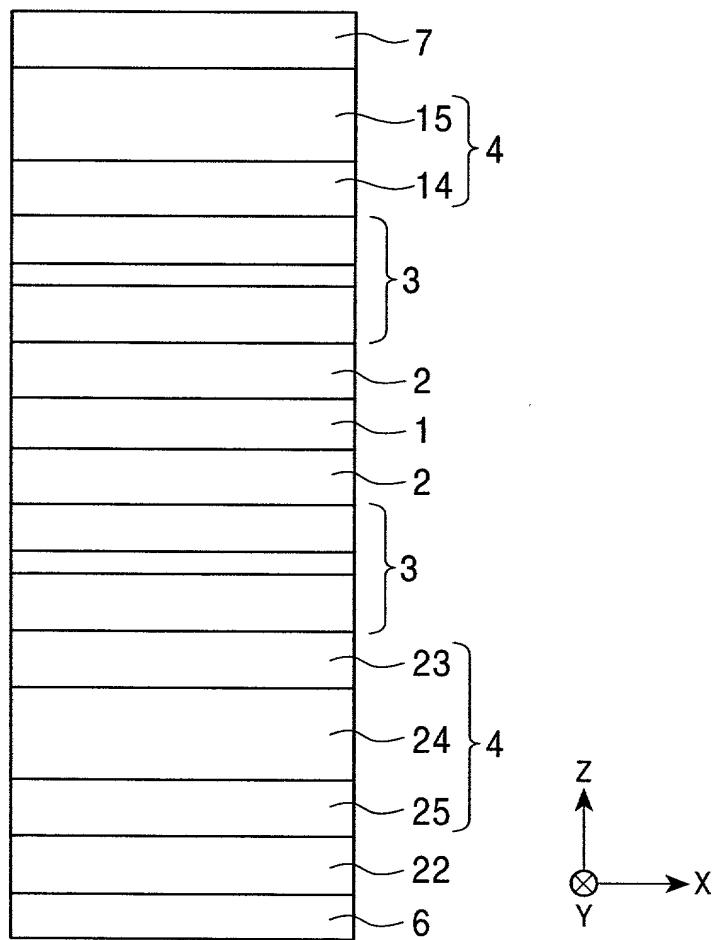
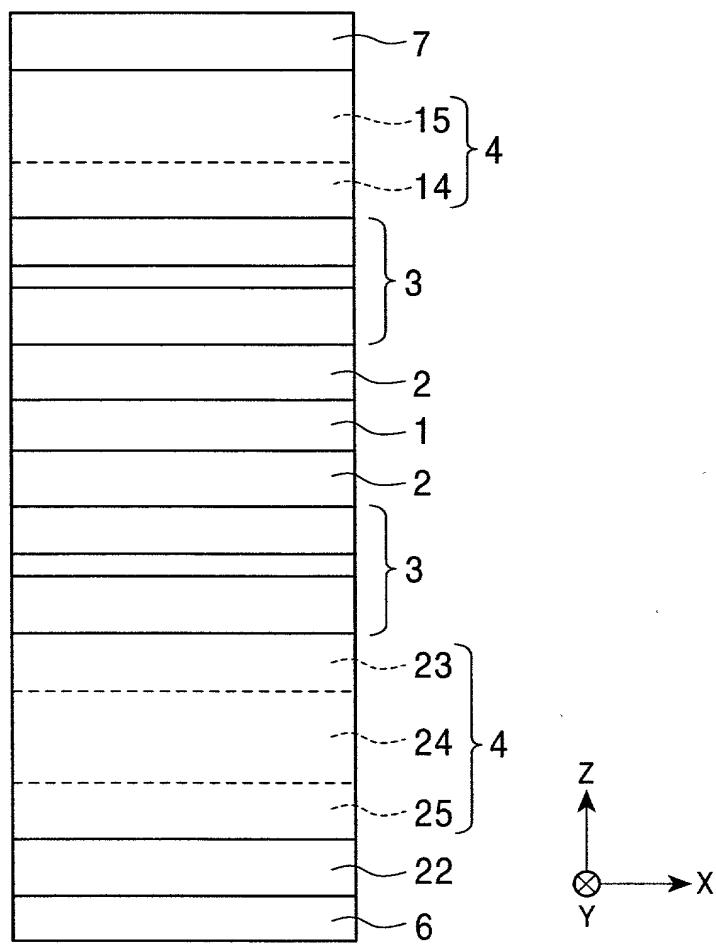


FIG. 11



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FIG. 12

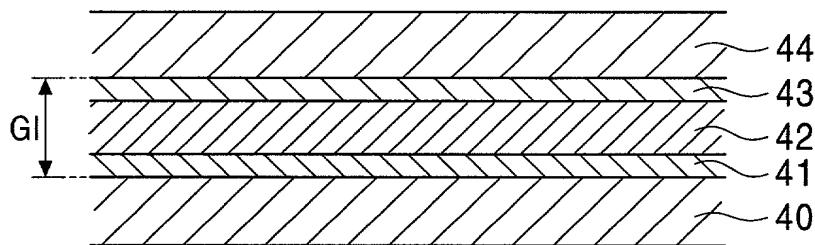
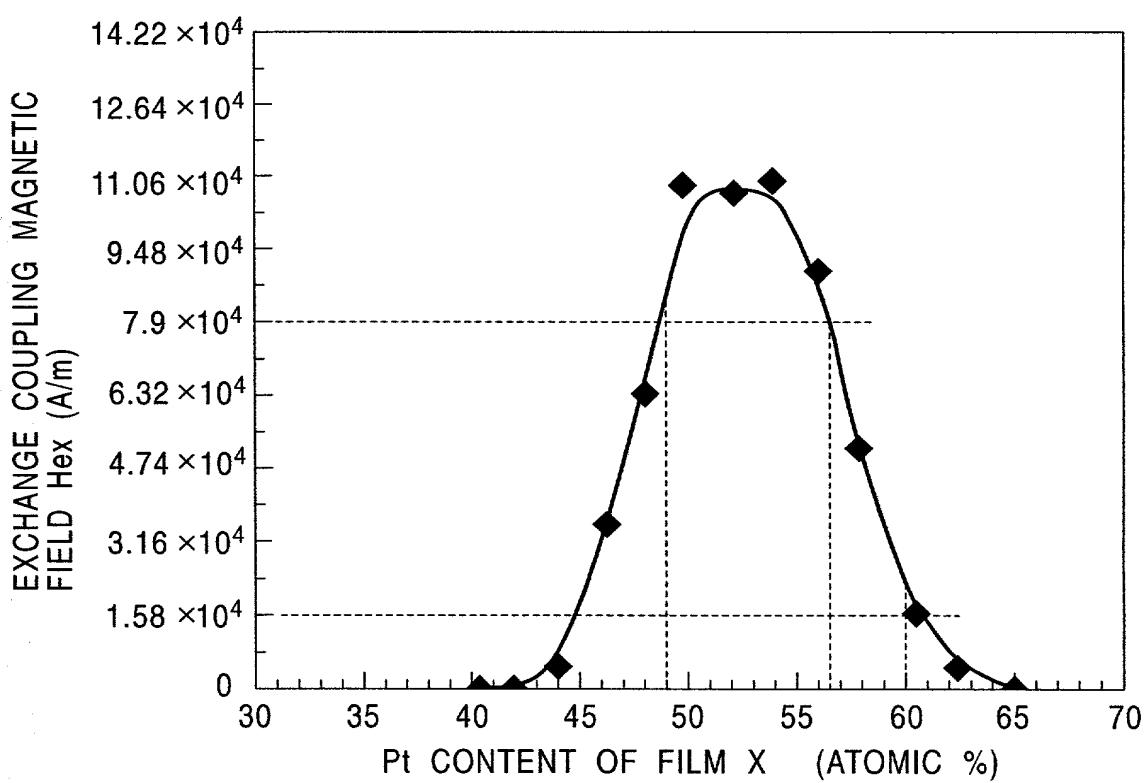


FIG. 13



FILM STRUCTURE: Si SUBSTRATE/ALUMINA/Ta(3nm)/NiFe
(3nm)/PtMn(15nm)/Co
(1.5nm)/Ru(0.8nm)/Co
(2.5nm)/Cu(2.3nm)/Co
(1nm)/NiFe(3nm)/Cu(1.5nm)/Ta(3nm)

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FIG. 14

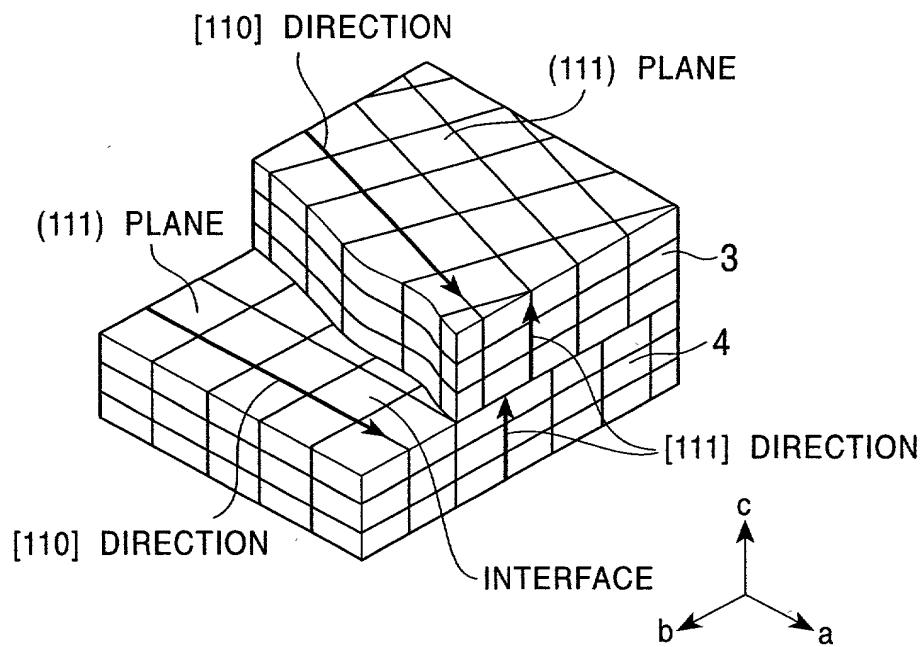
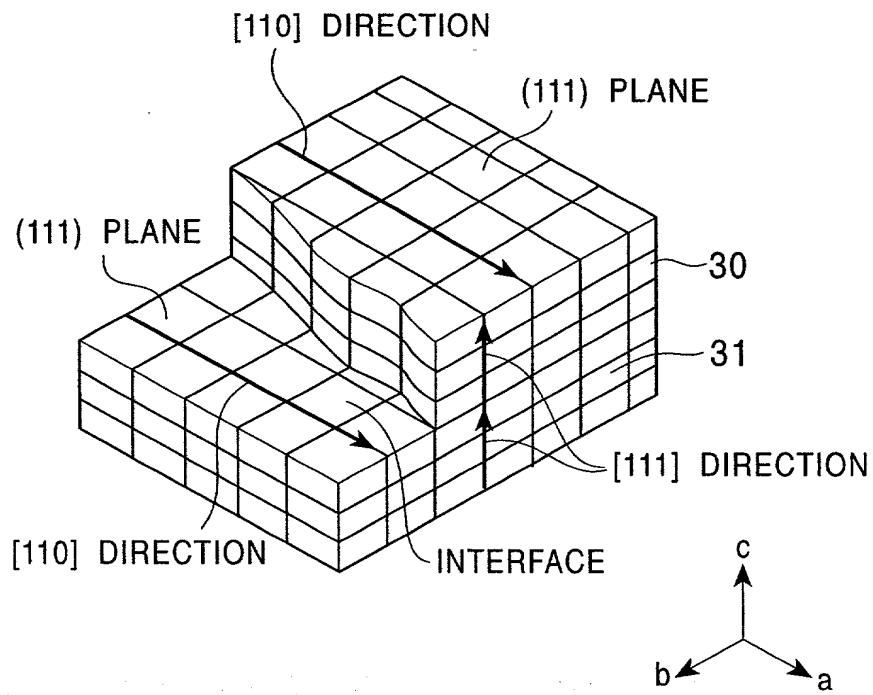


FIG. 15



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FIG. 16

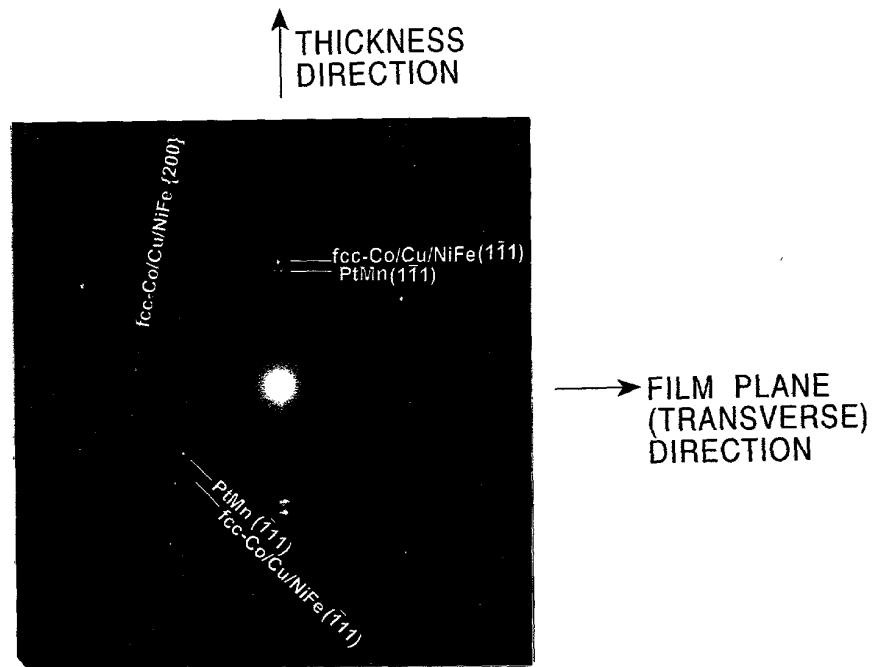


FIG. 17

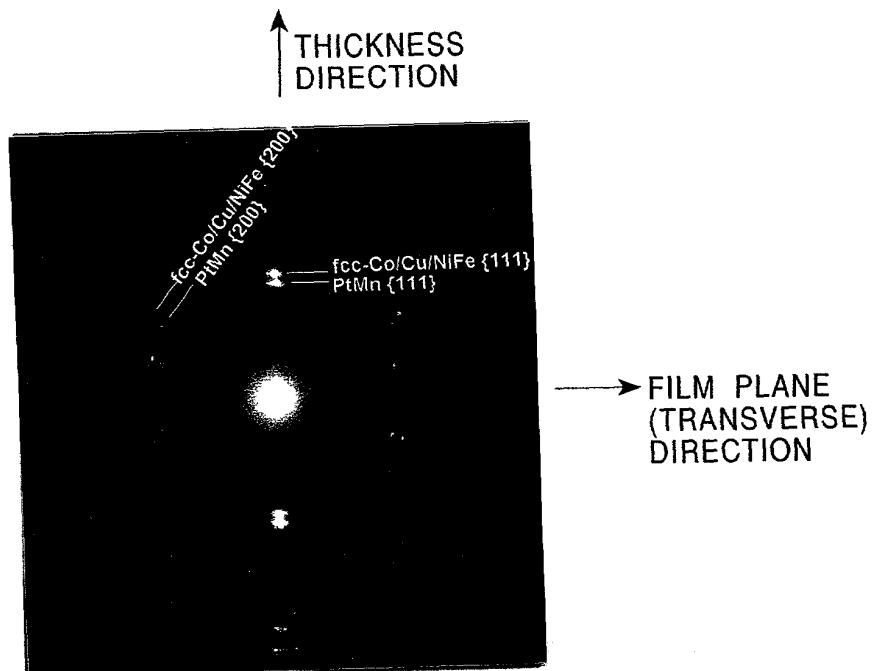


FIG. 18

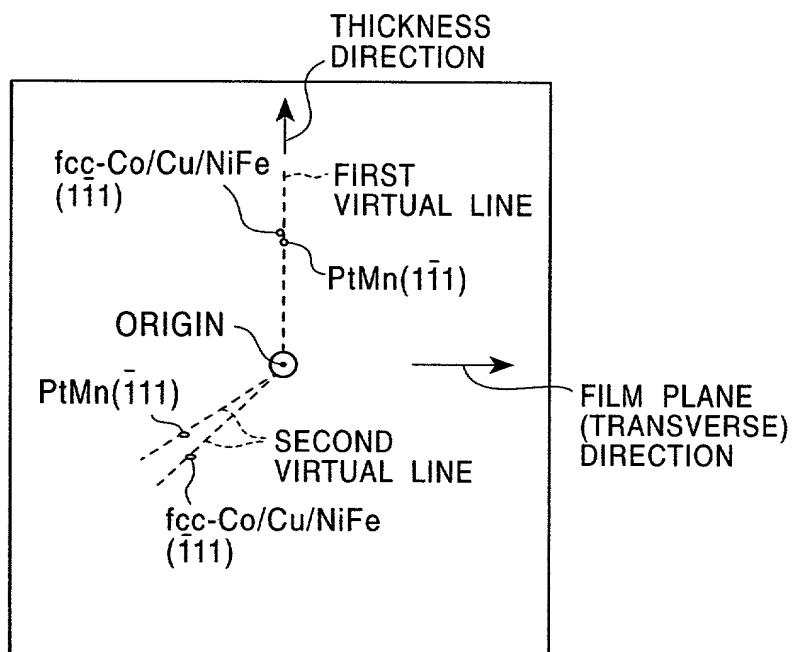
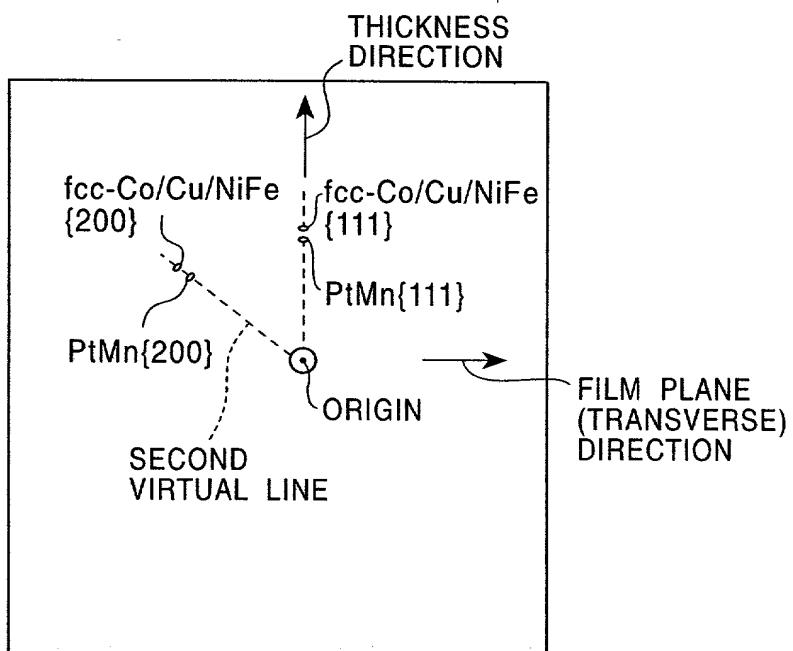


FIG. 19



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FIG. 20

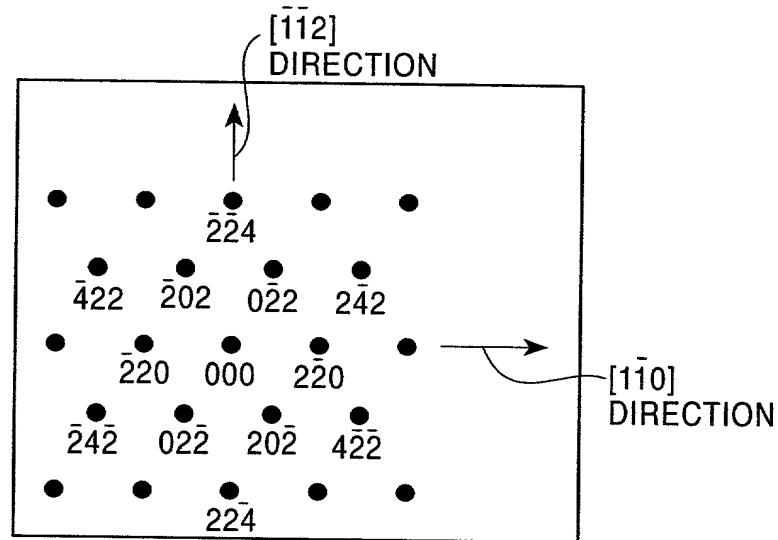
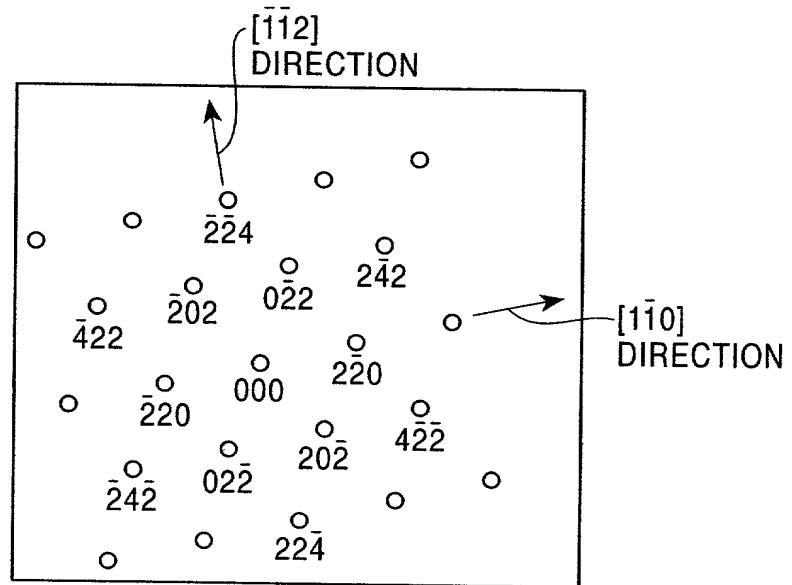


FIG. 21



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FIG. 22

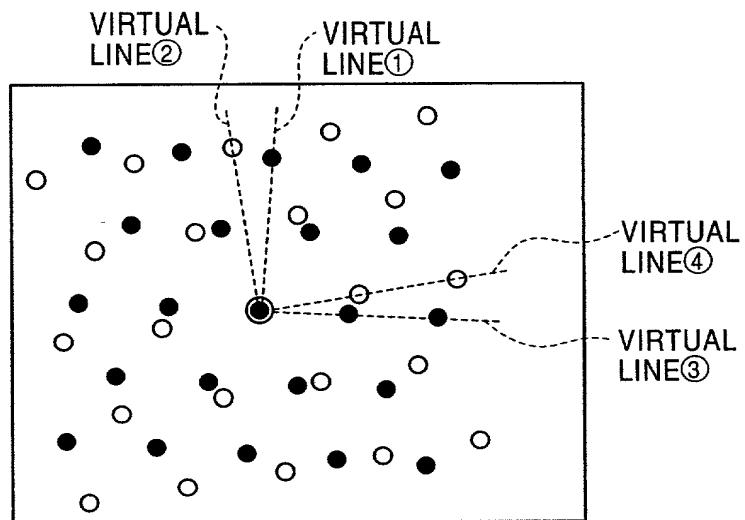
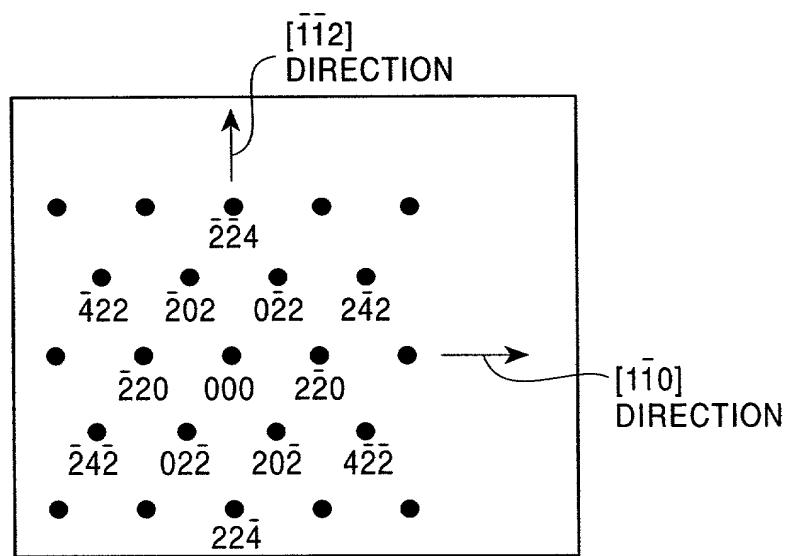


FIG. 23



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FIG. 24

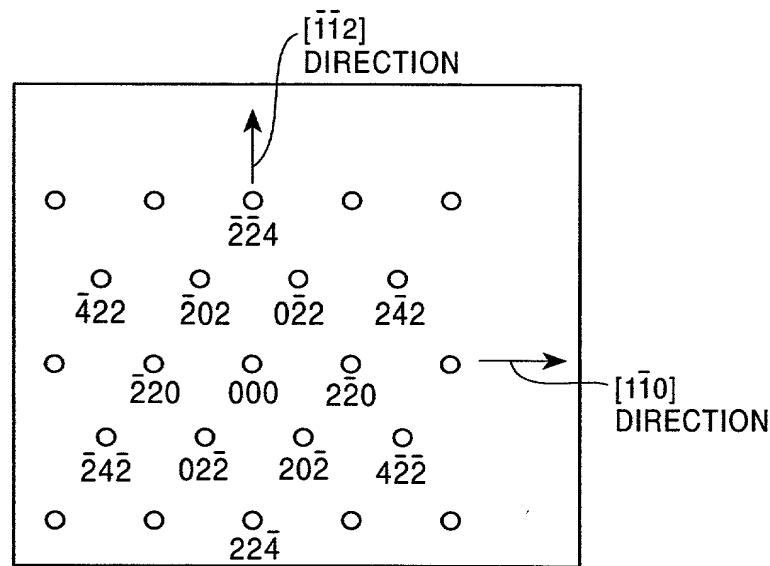


FIG. 25

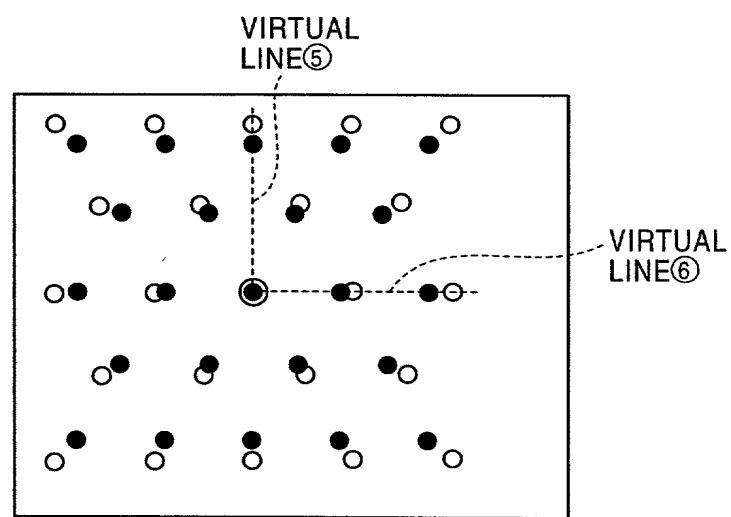


FIG. 26

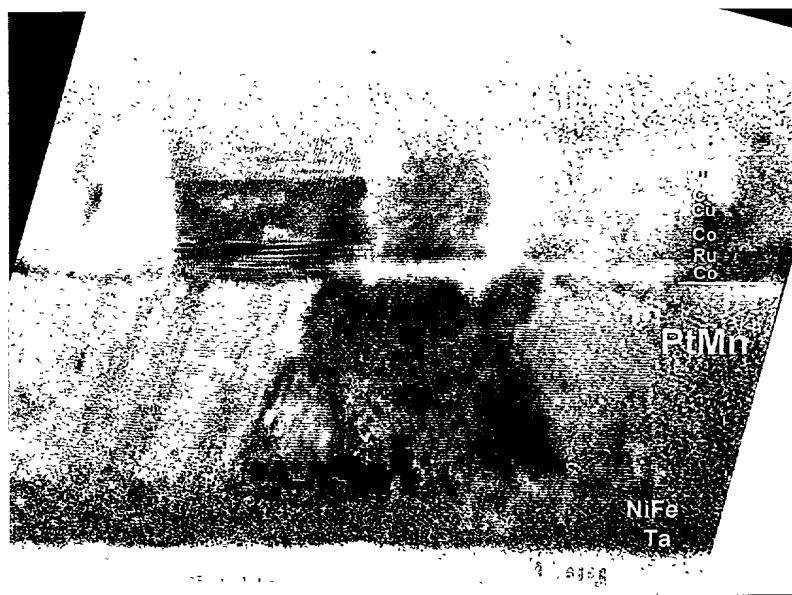


FIG. 27

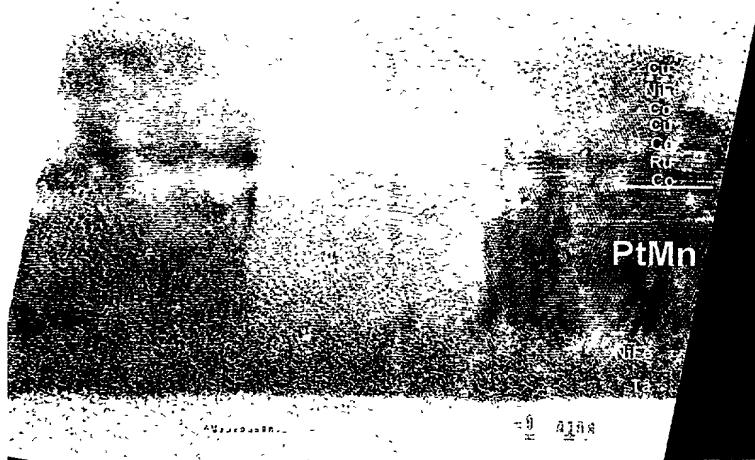


FIG. 28

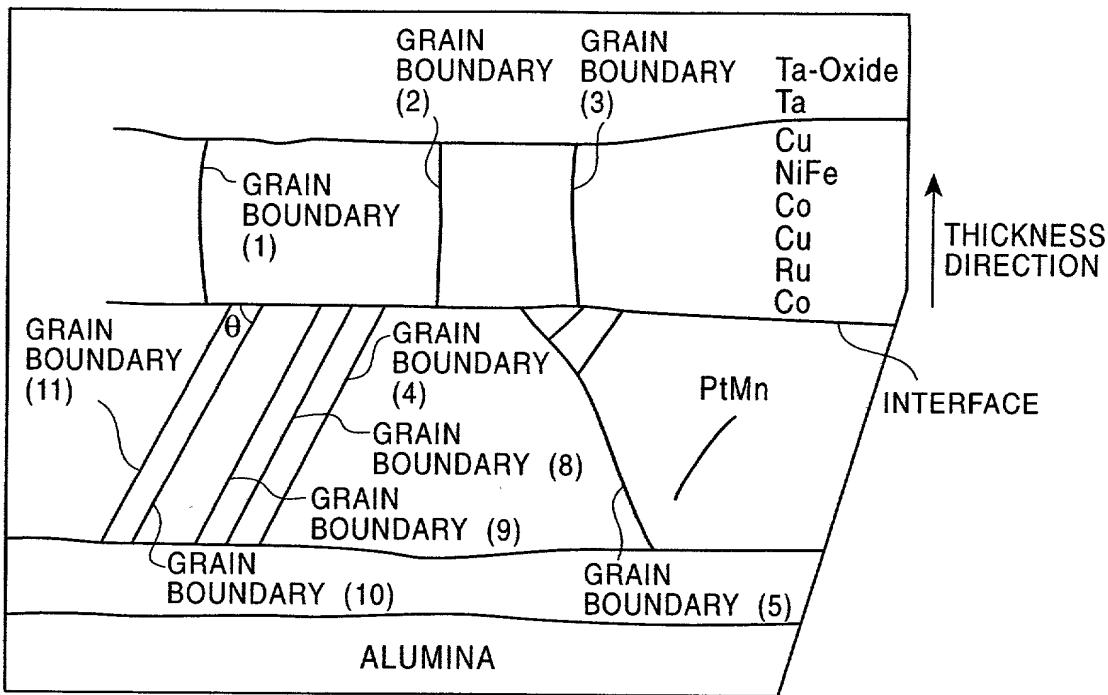


FIG. 29

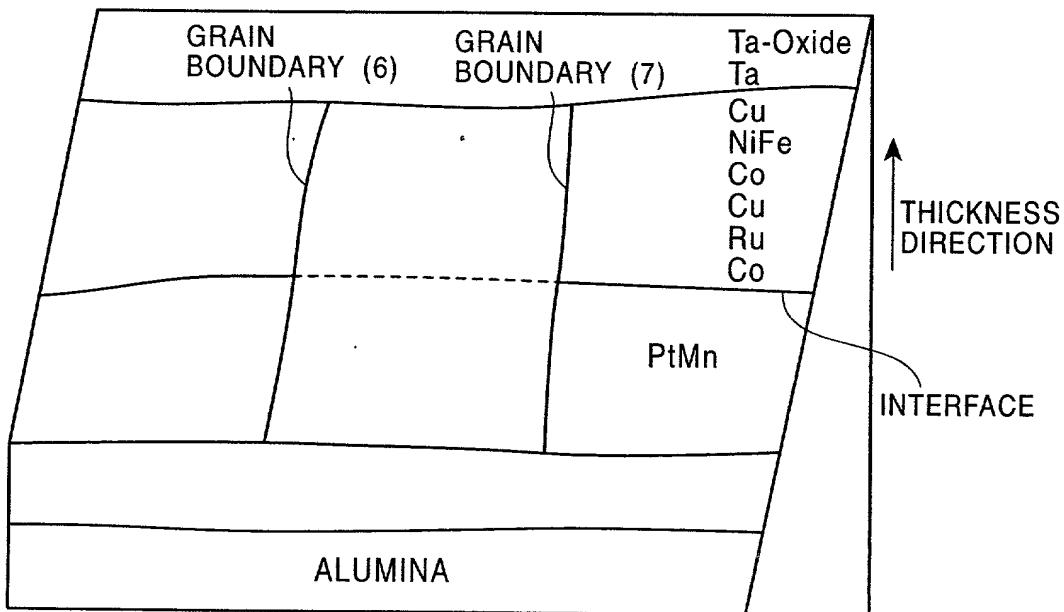
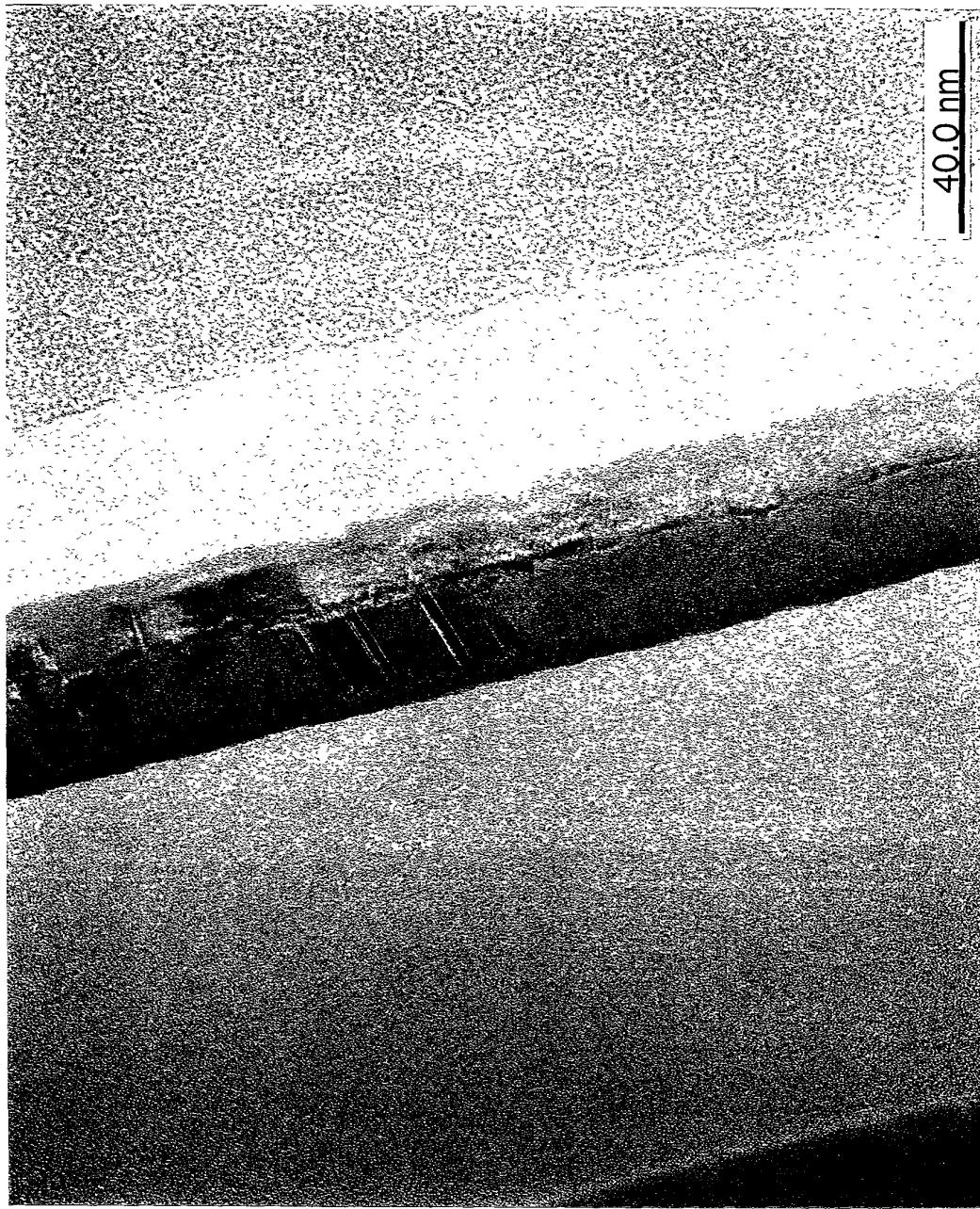


FIG. 30



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FIG. 31

